APPENDIX E: AGRITERRORISM

APPENDIX E: AGRITERRORISM

Agriterrorism is the malicious use of plant or animal pathogens to cause devastating disease in the agricultural sector. It may also take the form of hoaxes and threats intended to create public fear of such events.

"Biological weapons are not just a threat to human health. A terrorist armed with animal or plant pathogens also threatens the livestock, poultry, and crops of the agricultural sector, a vital part of the U.S. economy. The fact that a single, determined individual or small group could bring all U.S. beef or wheat exports to a halt underscores the need for increased defense against this threat."[1]

Infecting a herd of livestock that lives out in the open would be easier than attacking people, and some diseases, such as foot-and-mouth disease, could spread quickly as producers move and disperse their herds. One aspect of agriterrorism that differentiates it from biological terrorism aimed at killing or sickening people is that this is essentially an **economic attack**. Although there are animal diseases that can also infect humans, those diseases are few and in most cases the impact on human health is not serious. The real impact of agriterrorism is the potential for devastating economical impact.

HOW SERIOUSLY IS THE U.S. GOVERNMENT TAKING THIS THREAT?

According to Peter Chalk, an expert on transnational terrorism at the RAND Corporation:

> One somewhat surprising addition to the 2001 budget is a line-item for $39.8 million to be apportioned to the US Department of Agriculture (USDA), a federal body that has not in the past received much attention in US national security contingencies. Its inclusion reflects a growing concern that the agricultural sector, which accounts for roughly one sixth of US GDP—more if related food industries and suppliers are factored in—may become the target of a future act of chemical or biological (CB) terrorism. This concern has been generated by a growing realization that CB attacks against livestock and the food chain are substantially easier and less risky to carry out than those directed at civilian targets.[2]

[1] Anne Kohnen. "Responding to the Threat of Agriterrorism: Specific Recommendations for the United States Department of Agriculture." BCSIA Discussion Paper 2000-29, ESDP Discussion Paper ESDP-2000-04, John F. Kennedy School of Government, Harvard University, October 2000, p. 38.

[2] Chalk, Peter. "The US Agricultural Sector: A New Target for Terrorism?" Jane's Intelligence Review, February 9, 2001. Accessed at http://www.janes.com/regional_news/americas/news/jir/jir010209_1_n.shtml.

AGRITERRORISM (CONTINUED)

HOW SERIOUSLY IS THE U.S. GOVERNMENT TAKING THIS THREAT? (CONTINUED)

On October 11, 2001, the U.S. Secretary of Agriculture announced the distribution of nearly $2 million in grants in 32 States to bolster emergency animal disease prevention, preparedness, response, and recovery systems. Funding will be used for training, equipment purchases, and to conduct emergency preparedness exercises to help strengthen these programs.

THE THREAT

Experts worry that agriterrorism may be more attractive to terrorists than traditional bio-chemical attacks because it is virtually risk-free and has a high probability of success. The following factors contribute to this situation.

Why Agriterrorism May Be an Attractive Tool for Terrorists

FACTOR	DESCRIPTION
Lower physical risk	Disseminating a plant or livestock disease pathogen presents less physical risk to the perpetrator than releasing human disease pathogens or lethal chemicals.
Smaller chance of outrage and backlash	Agriterrorism is not likely to create the same kind of backlash as using a method of terrorism that kills people.
Similarity to natural outbreaks	Livestock and crops can be attacked in a way that the disease outbreak mimics a natural disease occurrence, complicating epidemiological investigation and reducing risk of detection.
Lower technical barriers	Agriterrorism can be carried out fairly easily, by comparatively low-tech means. The cost and the technical/scientific skills and education required to collect, produce, and deliver biological agents against animal agriculture are modest. Pathogens could be isolated from infected animals or diseased crops, and small quantities could easily be carried across a Customs checkpoint or unregulated border area, or sent through the mail. Then, infection with some pathogens would be simple. (For example, a terrible epidemic could be caused by dropping Newcastle disease-contaminated bird droppings into a feeding trough, or placing tongue scrapings from foot-and-mouth disease-infected animals into the ventilation system of a large hog operation.)

AGRITERRORISM (CONTINUED)

Vulnerability

The following factors increase the United States' vulnerability to agriterrorism:

Factors That Affect Vulnerability

FACTORS	DESCRIPTION
Number of agents	There are many agents (at least 22) that are lethal and highly contagious to animals, many of which are not vaccinated against.
Resilience	Most of these agents are environmentally resilient. They can live for a long time in organic matter (e.g., soil).
Susceptibility	Antibiotic and steroid programs, and husbandry programs designed to improve quality and quantity of meat, have made U.S. livestock more disease prone. U.S. livestock and poultry are especially susceptible to exotic diseases because most serious diseases that affect them have been eradicated or brought under control with U.S. borders, so the animals lack antibodies to fight these agents. In crops, widespread use of commercial hybrids has limited their genetic diversity, making them more vulnerable to a killer pathogen.
Concentrated populations	Animal populations are highly concentrated, and large herds make ideal targets for infection and contagion. For example: ▪ About 75% of the swine industry is concentrated in nine Midwestern States; the most successful swine farms each have 10,000 hogs or more. ▪ Beef cattle are fattened in large feedlots—some containing 150,000 to 300,00 animals at a time. ▪ Dairies usually have as many as 1,500 lactating cows at one time. ▪ Poultry has a heavy concentration in the Delaware/Maryland/Virginia peninsula. Chickens are usually grown in floor pens with 10,000 to 20,000 birds per pen.
Mobility	Animal populations are highly mobile. The animals are typically born in one location, moved halfway across the country to a feedlot for final fattening, then moved again for slaughter. Chicken breeding stocks and eggs are shipped great distances for the purpose of genetic improvements. Animals that are incubating disease during these movements can greatly increase the spread of the disease.

AGRITERRORISM (CONTINUED)

Vulnerability (Continued)

FACTORS	DESCRIPTION
Inadequate security	Agricultural facilities are not highly secure. Food processors lacking sufficient security and safety preparedness methods have proliferated over the years.
Limited detection capabilities	The United States is even more vulnerable because it is unprepared to prevent such an attack or even quickly detect an outbreak. (Veterinary students receive minimal education in foreign animal diseases.) Our primary recourse would be response, after an attack has occurred.

Comparative Threat

Animals. Anti-livestock pathogens are of the greatest concern because they can be introduced simply and would spread quickly.

Crops. Some experts believe that pathogens designed to attack existing crops would be less effective weapons because they spread slowly and unreliably and are highly influenced by weather. It would be difficult to cause the widespread destruction of a crop because most crops are not grown in isolation. In addition, they have already been exposed to various pathogens, which has increased their resistance. (There are, however, a few foreign strains against which current crops have no resistance, and some strains are highly resistant to fungicides.)

Seed. The infection of seed may be more likely because much of the seed used in U.S. agriculture is produced overseas, and only a small portion of imported seed is actually tested.

POTENTIAL IMPACT

The potential ramifications of a bioassault on the U.S. agricultural industry would be far-reaching, with major economic and social consequences. The amount of damage would depend on how quickly the problem is detected.

AGRITERRORISM (CONTINUED)

Economic Impact

According to veterinary pathologist Corrie Brown, bioterrorism aimed at humans would be "economically pale" in comparison with an attack on American agriculture.[3] An attack on livestock would set off a chain reaction that would include:

- Direct economic losses (herd destruction, containment measures, disposal of dead animals).
- Rise in consumer prices for meat.
- Compensation to farmers.
- Agricultural industry layoffs and unemployment.
- Impact on retail food business and restaurant industry (both from increased prices and from loss of business because of consumer fear).
- Trade restrictions, loss of exports, and drop in international trade. (A very small outbreak could prompt international export restrictions.)

Examples of Disease Outbreaks and Their Impact

- The largest recent animal disease outbreak in the United States occurred in 1983-84, when avian influenza swept through Pennsylvania and neighboring States. Poultry prices for consumers jumped by $350 million. A 6-month eradication plan cost the Federal Government $63 million.
- American officials say that a food contamination scare similar to the one that hit the Belgium poultry industry in the late 1990s could jeopardize $140 billion in annual U.S. agricultural exports. Soybean rust could wipe out an $8 billion/year industry. Asian longhorn beetles could be used to kill maple trees and cripple syrup production in New England. Any targeted agricultural industry would suffer catastrophic losses.
- In 1970 leaf blight destroyed about $1 billion worth of corn in the United States. Between 1993 and 1998, fusarium head blight affected successive wheat harvests in the Dakotas, Minnesota, and Manitoba. The disease spread over 10 million acres, probably with the help of abnormally wet weather, and cost an estimated $1 billion in lost production.
- Diseases that can be passed to humans would have an even greater impact. In 1988, the value of British beef and beef products was estimated at US $880 million. After bovine spongiform encephalopathy (BSE, or "mad cow disease") emerged, its value dropped considerably. After a 1996 announcement of a probable link between consumption of BSE-affected meat and a new variant of Creutzfeld-Jakob disease in humans, the value fell to zero.

[3] Brown, Corrie. "Agri-Terrorism: A Cause for Alarm." *The Monitor: Nonproliferation, Demilitarization, and Arms Control.* Winter-Spring 1999, pp. 6-8.

AGRITERRORISM (CONTINUED)

Social Impact

A successful bioassault would undermine confidence in the country's ability to protect its citizenry.

> Successfully releasing contagious agents against crops and livestock would cause people to lose confidence in the safety of food supply and could lead them to question the effectiveness of existing contingency planning against WMD in general. . . . People may begin to equate the ability to infect animals with an enhanced capacity to target humans, calling for greater emergency planning in major cities, more stockpiling of vaccines and increased surveillance of 'high-risk' groups (which has implications for civil liberties).[4]

Other potential issues related to consumer confidence include:

- Opposition to mass culling of herds.
- Problems relating to the safe disposal of huge numbers of carcasses. (Burning and burial could incite environmental activists to terrorist acts of their own.)
- Mass panic and disruptive migrations of frightened people (especially if the disease is one that can transfer from animal species to humans).
- Psychological effects, especially if the disease symptoms are delayed or chronic. The dairy industry could be devastated by "mad cow" disease or foot-and-mouth disease.

[4] Chalk, ibid.

DISEASES

Diseases affect either animals or crops.

ANIMAL DISEASES

The Office International des Epizooties (OIE)[5] is an intergovernmental organization with 155 member countries. The World Trade Organization (WTO) recognizes the OIE as the international body responsible for setting animal health standards on which international trade restrictions will be based and calls for the use of standards, guidelines, and recommendations developed under the auspices of the OIE. The OIE maintains two lists of diseases:

- **List A:** Transmissible diseases which have the potential for very serious and rapid spread, irrespective of national borders, which are of serious socio-economic or public health consequence and which are of major importance in the international trade of animals and animal products.
- **List B:** Transmissible diseases that are considered to be of socioeconomic and/or public health importance within countries and which are significant in the international trade of animals and animal products.

[5] Also called the International Office of Epizootics or the World Organization for Animal Health.

DISEASES (CONTINUED)

ANIMAL DISEASES (CONTINUED)

LIST A DISEASES	SELECTED LIST B DISEASES[6]	
▪ African horse sickness ▪ African swine fever ▪ Bluetongue ▪ Classical swine fever ▪ Contagious bovine pleuropneumonia ▪ Foot-and-mouth disease ▪ Highly pathogenic avian influenza ▪ Lumpy skin disease ▪ Newcastle disease ▪ Peste des petits ruminants ▪ Rift Valley fever ▪ Rinderpest ▪ Sheep pox and goat pox ▪ Swine vesicular disease ▪ Vesicular stomatitis	**Multiple Species:** ▪ Anthrax ▪ Aujeszky's disease ▪ Echinococcosis/hydatidosis ▪ Heartwater ▪ Leptospirosis ▪ New World screwworm Cochliomyia hominivorax) ▪ Old World screwworm (Chrysomya bezziana) ▪ Paratuberculosis ▪ Q Fever ▪ Rabies **Avian:** ▪ Avian infectious bronchitis ▪ Avian infectious laryngotracheitis ▪ Avian mycoplasmosis (M. Avian chlamydiosis gallisepticum) ▪ Avian tuberculosis ▪ Duck virus hepatitis ▪ Duck virus enteritis ▪ Fowl cholera ▪ Fowl pox ▪ Fowl typhoid ▪ Infectious bursal disease (Gumboro disease) ▪ Marek's disease ▪ Pullorum disease	**Cattle:** ▪ Bovine anaplasmosis ▪ Bovine babesiosis ▪ Bovine brucellosis ▪ Bovine cysticercosis ▪ Bovine genital campylobacteriosis ▪ Bovine spongiform encephalopathy (BSE) ▪ Bovine tuberculosis ▪ Dermatophilosis ▪ Enzootic bovine leukosis ▪ Haemorrhagic septicaemia ▪ Infectious bovine rhinotracheitis/ infectious pustular vulvovaginitis ▪ Malignant catarrhal fever ▪ Theileriosis ▪ Trichomonosis ▪ Trypanosomosis (tsetse-borne) **Swine:** ▪ Atrophic rhinitis of swine Enterovirus encephalomyelitis ▪ Porcine brucellosis ▪ Porcine cysticercosis ▪ Porcine reproductive and respiratory syndrome ▪ Transmissible gastroenteritis ▪ Trichinellosis

[6] Other categories of List B diseases include equine, sheep, goat, fish, crustacean, bee, Lagomorph, mollusc, and other. Full lists are available at the OIE web site: http://www.oie.int/eng/maladies/en_fiches.htm.

DISEASES (CONTINUED)

Disease Transmission Among Animals

Animal diseases can be spread in three primary ways:

- **Airborne transmission.** Some diseases (e.g., foot-and-mouth (FAM) disease, avian influenza, Newcastle disease) can travel in aerosol form very long distances in the air. (In 1981, FAM broke out in France and traveled 175 miles to Great Britain in 3 days.) Airborne diseases are extremely difficult to contain and thus would present an enormous challenge to emergency responders in the event of an outbreak. These diseases can also be transmitted by direct contact.

Countries Where FAM Disease Has Been Reported Since 2000[7]

- **Direct contact.** Some diseases (e.g., FAM, rinderpest, vesicular stomatitis, hog cholera, African swine fever) can be spread by direct contact among animals, contact with contaminated objects such as feed and water troughs, milking machines and other equipment, and people's clothes and shoes. This makes biosecurity measures—keeping animal facilities clean and restricting human and vehicle traffic around animals—absolutely critical.
- **Vectors.** Some diseases (e.g., vesicular stomatitis, lumpy skin disease, Rift Valley fever, bluetongue, African swine fever) can be spread by other organisms, such as mosquitoes and ticks. In these cases, disease control depends on insect control.

Transmission of Animal Diseases to Humans

Some animal viruses are zoonotics. That is, they can be transferred to another species (e.g., humans). Zoonotics usually do not affect humans in the same way they do animals. For example, FAM, vesicular stomatitis, and Newcastle disease can be transmitted to humans, but the resulting illness is mild and not considered dangerous to human health.

However, a few pathogens have been known to seriously harm humans. For example, people have died from avian influenza, and 74 cases of new variant Creutzfeldt-Jakob disease (a fatal neurological disorder) have been linked to ingestion of BSE-infected beef products.

[7] American Farm Bureau, "Foot-and-Mouth Surveillance May Prevent Attacks." *The Voice of Agriculture Newsroom*, Vol. 80, No. 19, October 22, 2001. Accessed at www.fb.org/news/fbn/html/agriculturalterrorism.html.

DISEASES (CONTINUED)

Transmission of Animal Diseases to Humans (Continued)

Although the threat of agriterrorism is primarily an economic concern, the emergence of new zoonotics, such as the recent Nipah virus in Malaysia and West Nile virus in New York City, raises serious human health considerations as well.

Animal Diseases of Greatest Concern

The animal diseases of greatest concern to the United States are Foreign Animal Diseases (FADs)—diseases not normally found in this country. These diseases have the potential to spread quickly because U.S. animals have not built up resistance to them.

An outbreak of one of the List A diseases could severely damage the U.S. agricultural market because it would be internationally recognized as grounds for export embargo.

Viruses present the greatest agriterrorism threat to livestock. All of the List A animal diseases are viruses, except contagious bovine pleuropneumonia which is caused by mycoplasma. (For more information on viruses and mycoplasmas, refer to Biological Agents in Appendix A.)

The following table[8] summarizes information about List A diseases that primarily affect cattle, swine, and poultry. BSE ("mad cow disease"), included in the table, is not a List A disease but is of current interest. Other List A diseases include peste des petits ruminants and sheep/goat pox, which affect primarily sheep and goats, and African horse fever, which affects primarily horses.

[8] Kohnen, p. 16.

DISEASES (CONTINUED)

Animal Diseases of Greatest Concern (Continued)

List A Diseases Affecting Primarily Cattle, Swine, or Poultry

DISEASE	PRIMARY MODES OF TRANSMISSION	PRIMARY ANIMALS AFFECTED	VACCINE AVAILABLE?	LOCATION	AFFECT HUMANS?
Foot-and mouth disease	Airborne aerosols; direct or indirect contact (via human clothing, equipment, vehicles, or through milk or partially cooked meat)	Cloven-hoofed animals (esp. cattle and swine)	Y	Asia, Africa, Middle East, South America	Occasionally after prolonged exposure, humans can develop mild symptoms
Vesicular stomatitis	Direct contact (i.e., shared feed and water troughs, milking machines); insect vectors	Cattle Swine Horses	Y	U.S., Mexico, Canada, Caribbean, Central and So. America	During epidemics humans can get a version resembling flu
Swine vesicular disease	Ingestion of infected meat	Swine	N	Hong Kong, Japan, Europe	Occasional cases of flu-like illness
Rinderpest ("cattle plague")	Direct contact with any animal secretions; airborne droplets	Cattle Sheep Goats	Y	Africa, Middle East, Asia	N
Contagious bovine pleuro-pneumonia	Inhalation of droplets of infected animal secretions	Cattle	Y	Asia, Central Africa, Spain, Portugal	N
Lumpy skin disease	Insect vectors	Cattle	Y	Africa	N
Rift Valley fever	Insect vectors, esp. mosquitoes; direct contact with blood or tissue	Sheep Cattle	Y	Africa	Humans very susceptible; disease is sometimes fatal (human vaccine available)
Bluetongue	Insect vectors	Sheep Cattle	Y	U.S., Africa, Europe	N
Bovine spongiform encephalopathy ("mad cow disease")	Ingestion of foods containing infected meat and bone meal	Cattle	N	Primarily Great Britain; some cases in W. Europe	Suspected precursor to new variant of Creutzfeldt-Jakob disease (fatal)
African swine fever	Insect vectors (ticks); ingestion of infected meat; direct contact; airborne aerosols within buildings	Swine	N	Africa, Iberian Peninsula, Sardinia	N

DISEASES (CONTINUED)

Animal Diseases of Greatest Concern (Continued)

List A Diseases Affecting Primarily Cattle, Swine, or Poultry

DISEASE	PRIMARY MODES OF TRANSMISSION	PRIMARY ANIMALS AFFECTED	VACCINE AVAILABLE?	LOCATION	AFFECT HUMANS?
Classical swine fever ("hog cholera")	Direct contact with animal secretions; indirect contact via shoes, clothing, equipment	Swine	Y	Africa, Asia, So. and Central America, parts of Europe	N
Highly pathogenic avian influenza ("fowl plague")	Direct contact; airborne aerosols	Chickens Turkeys	Y	Worldwide	Usually rare, but 1997 Hong Kong epidemic killed 6 with influenza-like illness
Newcastle disease	Direct contact with animal secretions—feces; contaminated feed, water, equipment, human clothing, etc.	Poultry Wild birds	Y	Worldwide	Occasionally causes transitory conjunctivitis after extensive exposure

CROP DISEASES

Most crop diseases produce failed harvests rather than killing the plants outright. They do so by drastically reducing crop quality and quantity.

> Fungi present the biggest threat to crops. The three anticrop agents developed by the United States in the 1960s were all fungi: wheat rust, corn smut, and rice blast. If a fungus were introduced under the right conditions, "the spores…[could be] spread for great distances by the wind and establish centers for further spread once they infect a plant. Because of infection, subsequent spread normally occurs in a series of waves, the frequency of which depends on the incubation period of the particular fungus.[9]

The WTO recognizes the International Plant Protection Convention (IPPC) as the source of international standards for the plant safety measures affecting trade (i.e., the pathogens to which plants and plant products must not have been exposed). Each of the 111 IPCC member countries submits its own phytosanitary restrictions according to the standards set by the IPPC and the country's specific vulnerabilities.

[9] Rothschild, J.H. *Tomorrow's Weapons: Chemical and Biological* (New York: McGraw-Hill, 1964), p. 24. Quoted in Kohnen, p. 17.

DISEASES (CONTINUED)

Transmission of Crop Diseases

Crop diseases are caused by fungi, viruses, and bacteria. These plant pathogens are transmitted by wind, water, or vectors. Because they depend heavily on environmental factors (e.g., temperature, humidity, rainfall, sunlight), the introduction of a pathogen does not necessarily result in widespread infection. There are three primary transmission modes of crop diseases:

- **Airborne (Fungal Diseases).** Fungi produce dry spores, which are dispersed on the wind and can travel great distances. After a fungus has infected an area, it is very difficult to eliminate all of the spores. Although fungicides are helpful, fungi can persist in other hosts, allowing the disease to continue infecting plants for a long time.
- **Vectors (Viruses and Bacteria).** Insects such as aphids are often virus carriers. When an aphid feeds on a leaf, it pierces cell walls and transmits the virus. Although viruses can be extremely damaging to crops, their ability to spread is limited by insect movement. Crop viruses are currently untreatable. Virus control depends on insect control and the use of virus-resistant crop strains. Insects can also transmit bacteria.
- **Waterborne (Bacteria).** Bacteria require moisture for transmission. Although they cannot be transmitted on the wind, they can travel via wind-driven rain. Splashing rainwater can spread bacteria among individual plants, and irrigation runoff can spread bacteria over entire fields. Although bacteria can cause serious plant diseases, they generally cannot spread over vast areas.

Crop Diseases of Greatest Concern

There is no international List A of crop diseases, because every country sets its own import requirements. However, the diseases listed in the following table are particularly worrisome based on the following factors:

- Ease of transmission.
- High level of impact on harvests.
- Ability to infect staple cereals.
- Historical consideration for offensive weapons use.

DISEASES (CONTINUED)

Crop Diseases of Greatest Concern (Continued)

Crop Diseases of Particular Agriterrorism Concern[10]

CROP AFFECTED	DISEASE	PATHOGEN	PATHOGEN TYPE	PRIMARY MODE OF TRANSMISSION
Cereals (wheat, barley, rye)	Stem rust of wheat	*Puccinia graminis*	Fungus	Airborne spores
	Stem rust of cereals	*Puccinia glumarum*	Fungus	Airborne spores
	Powdery mildew of cereals	*Erysiphe graminis*	Fungus	Airborne spores
Corn	Corn blight	*Pseudomonas alboprecipitans*	Bacteria	Waterborne cells
Rice	Rice blast	*Pyricularia oryzae*	Fungus	Airborne spores
	Rice blight	*Xanthomonas oryzae*		Waterborne cells
	Rice brown-spot disease	*Helminthosporium oryzae*	Fungus	Airborne spores
Potato	Late blight of potato	*Phytophthora infestans*	Fungus	Airborne spores

Crop Pests

The introduction of a foreign pest is another potential agriterrorist threat. Insects can directly damage crops, and infestations of particular insects can prompt export restrictions. (The Mediterranean fruit fly, or "Medfly," lays its eggs on many types of fruit on which the larvae later feed. If the Medfly became established in the United States, the USDA estimates that it would cost $1.5 billion per year in lost production and export restrictions.

Crop Diseases and Public Health

Crop diseases are not generally considered a public health threat in the United States. Very few plant pathogens are toxic to humans, and strict regulatory processes prevent contaminated products from reaching the market.

[10] Adapted from Kohnen, p. 20.

POTENTIAL AGRITERRORISTS

Those who would engage in biological terrorism against humans are the same groups that might use agriterrorism. They may include:

- State sponsors (other countries).
- Domestic anti-government groups.
- Groups with an ideological cause.
- Sociopaths wanting to incite panic.
- Those with an economic motive.

POTENTIAL FOR STATE-SPONSORED AGRITERRORISM

The countries listed in the following table have (or used to have) state programs to develop offensive agriterrorism capabilities.

State Programs to Develop Offensive Capabilities[11]

COUNTRY	STATUS/DATES	DISEASES
Canada	Former (1941-1960s; exact termination date unclear)	anthrax, rinderpest
Egypt	Probable (1972-present)	anthrax, brucellosis, glanders, psittacosis, Eastern equine encephalitis
France	Former (1939-72; exact termination date unclear)	potato beetle, rinderpest
Germany	Former (1915-17, 1942-45)	anthrax, foot and mouth disease, glanders, potato beetle, wheat fungus. During WWII, also experimented with turnip weevils, antler moths, potato stalk rot, potato tuber decay, and miscellaneous anti-crop weeds.
Iraq	Known (1980s-present). Believed to retain elements of program despite UN disarmament efforts	aflatoxin, anthrax, camelpox (perhaps as surrogate for smallpox), foot and mouth disease, wheat stem rust
Japan	Former (1937-45)	anthrax, glanders. During WWII, experimented with miscellaneous anti-crop fungi, bacteria, nematodes.

[11] Adapted from Monterey Institute of International Studies, Center for Nonproliferation Studies, "Agri-Terrorism: Agricultural Biowarfare: State Programs to Develop Offensive Capabilities." Accessed at http://cns.miis.edu/research/cbw/agprogs.htm.

POTENTIAL AGRITERRORISTS (CONTINUED)

POTENTIAL FOR STATE-SPONSORED AGRITERRORISM (CONTINUED)

State Programs to Develop Offensive Capabilities

COUNTRY	STATUS/DATES	DISEASES
North Korea	Probable (? – present)	anthrax
Rhodesia (Zimbabwe)	Uncertain/former (1978-80)	anthrax (A suspicious epidemic of cattle anthrax resulted in 182 human deaths. Some epidemiologists believe the government infected livestock to impoverish rural black populations during the last phase of the Civil War.)
South Africa	Former (1980s-1993)	Anthrax
Syria	Probable (? – present)	Anthrax
United Kingdom	Former (1937-1960s; exact termination date unclear)	Anthrax
United States	Former (1943-69)	anthrax, brucellosis, Eastern & Western & Venezuelan equine encephalitis, foot-and-mouth disease, fowl plague, glanders, late blight of potato, Newcastle disease, psittacosis, rice blast, rice brown spot disease, rinderpest, wheat blast fungus, wheat stem rust
USSR (Russia, Khazakstan, Uzbekistan)	Former active (1935-92); current status unclear	African swine fever, anthrax, Avian influenza, brown grass mosaic, brucellosis, contagious bovine pleuropneumonia, contagious ecthyma (sheep), foot and mouth disease, glanders, maize rust, Newcastle disease virus, potato virus, psittacosis, rice blast, rinderpest, rye blast, tobacco mosaic, Venezuelan equine encephalitis, vesicular stomatitis, wheat & barley mosaic streak, wheat stem rust. Also experimented with parasitic insects and insect attractants.

POTENTIAL AGRITERRORISTS (CONTINUED)

Iraq

After the Gulf War, UNSCOM inspectors in Iraq learned that Iraq had developed at least one biological weapon aimed at agriculture and was investigating several others. Their research appeared to be targeting wheat crops—probably destined for use outside their region, because very little wheat is grown in the Middle East. Iraq is believed to have produced 2,200 liters of aflatoxin (used to destroy wheat crops) and has developed means of launching it on missile warheads. Inspectors also learned that the Iraqi foot-and-mouth disease research center at Doura was also used as a cover for other biological weapon research.

Russia

Over three decades, the Soviets developed biological weapons aimed at crops and livestock. The agents, supposedly destroyed after the fall of the Soviet Union, included agents to wipe out wheat, rye, corn, and rice, as well as foot-and-mouth and rinderpest for use against cows, African swine fever for pigs, and ornithosis and psittacosis for chickens. It has been reported that they developed variants of these diseases which could be sprayed from tanks attached to low-flying aircraft. The United States believes that, despite the decommissioning of Soviet biological weapons development facilities, Russia retains Soviet know-how and technology in that area.

GROUPS WITH IDEOLOGICAL MOTIVES

Single-issue groups (e.g., environmentalists and protesters concerned with genetically modified foods) seem plausible candidates to consider an act of agriterrorism or agro-sabotage. Most incidents to date have either been hoaxes or relied on chemical agents to attack agriculture.

1989 Breeders Incident

In 1989, a group calling themselves the Breeders threatened to spread Medfly through California if aerial spraying was continued. Investigators concluded that a deliberate infestation, causing the unusually large Medfly infestation in the area at that time, was being conducted. No one was ever caught.

Anti-GMO Groups

Groups opposed to genetically modified organisms (GMO) have already shown their commitment to the destruction of certain crops, with at least 18 recent incidents in 7 States. Although using biological weapons would seem to run counter to a pro-natural foods ideology, it would be easier and have a greater impact than physical damage to crops. Such groups may consider using biological weapons to further their cause if they think the ends justify the means.

POTENTIAL AGRITERRORISTS (CONTINUED)

ECONOMIC MOTIVES

Domestic or foreign agriterrorists might include those with profit motives. The following are examples:

- If a disease resulted in restrictions on U.S. exports, foreign agricultural producers would profit from their sudden gain in market share.
- On a local level, one producer could benefit from an outbreak of a non-communicable disease on a competing farm. Diseases that do not trigger nationwide trade restrictions could be maliciously introduced to allow one domestic producer to gain market share over another.
- If a disease outbreak caused trade restrictions to be put on all U.S. pork, U.S. prices would drop and foreign pork prices would rise. People who speculate on futures markets could profit from their knowledge of a pending change in U.S. prices.

PREVIOUS AGRITERRORIST ATTACKS IN THE UNITED STATES

The Center for Nonproliferation Studies lists 21 incidents (confirmed incidents, alleged incidents, and threats) of deliberate use of chemical/biological weapons to destroy pre-harvest crops or livestock, worldwide, from 1915 through 2000. Of these, five occurred in the United States; three are described on the next page.

POTENTIAL AGRITERRORISTS (CONTINUED)

PREVIOUS AGRITERRORIST ATTACKS IN THE UNITED STATES (CONTINUED)

Selected Incidents in the United States

YEAR	LOCATION	DESCRIPTION
1970	**Ashville, Alabama**	It is alleged that the water supply of a 1,000-acre farm owned and operated by a group of Black Muslims was poisoned, resulting in the death of 30 cows. The poison, a pinkish-white material found on and around rocks in the stream, was identified by a local veterinarian as cyanide. Reports indicate that local the Klu Klux Klan might have been responsible.
1996	**Florida**	A Florida university professor informed the CIA that a Florida citrus canker outbreak was the result of a Cuban biological weapons program. The CIA investigated the case but could not substantiate the claim. During that same time period, Cuba claimed that an outbreak of Thrips Palmi disease on the island was biological warfare introduced by the United States.
1996	**Berlin, Wisconsin**	The Berlin police chief received an anonymous letter claiming that feed products at National By-Products Inc. (a supplier for the Purina Mills animal feed plant) had been tainted with a pesticide and that the police should expect "large-scale animal mortality." Purina feed was tested and, when it was found to contain low levels of contamination (one or two parts per million), the company stopped shipment on 300 tons of feed bound for four Midwest States. It was determined that tallow at National By-Products Inc. had been deliberately contaminated with chlordane, a pesticide used to kill termites and linked to cancer in humans. In 1999, Brian W. Lea (owner of a rival milk ranch, dead livestock removal company, and animal food processing facility) was indicted for product tampering, having twice contaminated the plant's materials.

It should be noted, however, that health officials have not traditionally looked for deliberate sabotage when conducting epidemiological investigations of crop or animal diseases. Therefore, more acts may have taken place than are known about.

RESPONSE TO THE THREAT OF AGRITERRORISM

FEDERAL RESPONSE

The USDA has the major responsibility for protecting the nation's food supply from agriterrorism. Other agencies that share in this responsibility include the:

- National Security Council.
- Department of Justice.
- Department of Health and Human Services, which includes the Centers for Disease Control and Prevention.

The USDA increased its budget for counterterrorism in 2001 by $39.8 million. It has also requested funding to upgrade its research facility at Plum Island, NY, to Biosafety Level 4—capable of and dedicated to the study of plant and animal pathogens.

The United States has banned imports of many animal products, live ruminants, and swine from FAM disease-affected countries. Because of this year's increase in FAM flare-ups around the world, the USDA has assigned additional inspectors and dog teams at airports to check incoming flights and passengers.

"The U.S. agricultural economy has in place networks and plans to respond to an attack once detected, and surveillance of crop and animal disease in the United States is extraordinarily sophisticated. Even if a terrorist group managed to deliver a biological agent effectively against a target, the effects of the attack would likely be severely limited by the U.S. response."[12]

DISEASE SURVEILLANCE AND DETECTION

In covert attacks, how quickly a suspicious event is detected and reported will determine how timely and effective the response is. In turn, the timeliness and effectiveness of response will define the ability to reduce illness and death.

Need for surveillance. Surveillance is the first line of defense against a disease outbreak. U.S. agriculture relies upon ground surveillance—plant pathologist and field veterinarians—for disease reporting. The greater the number of human monitors, and the better trained they are to recognize diseases, the better the chance that serious diseases do not become widespread outbreaks. Disease outbreaks in wildlife should also be monitored because they can serve as early warning signs of agricultural outbreaks.

[12] Jason Pate and Gavin Cameron. "Covert Biological Weapons Attacks against Agricultural Targets: Assessing the Impact the Impact against U.S. Agriculture." BCSIA Discussion Paper 2001-9, ESDP Discussion Paper ESDP-2001-05, John F. Kennedy School of Government, Harvard University, August 2001. Accessed at the Center for Nonproliferation Studies web site, http://cns.miis.edu/research/cbw/aglinks.htm.

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

DISEASE SURVEILLANCE AND DETECTION (CONTINUED)

Need for quick diagnosis. A fast diagnosis is critical in the case of a disease such as FAM, which can spread hundreds of miles during the time lag between when the disease is noticed and when a national lab confirms it. Currently there are no rapid screening tests for FADs.

State labs do not routinely check for FADs because these diseases are so rare, and in some cases they do not have the resources to diagnose particular FADs. These samples have to be sent to a national lab. As a result, it could take several days for a FAD to be diagnosed.

PROTECTING AGAINST ANIMAL DISEASES

Biosecurity is an important means of preventing the introduction of disease to farms, feedlots, and other livestock and poultry facilities. Biosecurity should include:

- Keeping vehicles and people (e.g., non-business visitors) away from livestock and poultry buildings to prevent their introducing or transmitting diseases.
- Isolating new animals from the rest of the herd for several days to let potential symptoms appear. (Currently most cattle diseases are introduced through the purchase of infected animals.)

The Animal Agriculture Alliance suggests that farmers take the following measures to protect against terrorism.

STEPS TO PROTECT YOUR FARM FROM TERRORISM[13]

- ✔ **Talk seriously with your local police, fire and emergency departments.** Get to know them and let them know that you are making security a priority at your facility and will report any suspicious activities.
- ✔ **Make sure the appropriate public authorities have copies of maps of your facilities** that indicate service shut-off locations, security areas and any other areas of sensitivity or vulnerability.
- ✔ **Evaluate every request for information about your operation.** Never agree to an unusual request unless you have verified its validity. Whenever possible, require requests for sensitive information or tours to be in writing. Obtain as much information as possible—name, telephone number, address, reason for request, what the person will be doing with the information, who else has been contacted, etc. If anyone hesitates to cooperate with these requests, do not reveal information about or provide access to your operation.

[13] American Farm Bureau. "Steps to Protect Your Farm from Terrorism," *The Voice of Agriculture Newsroom*, October 22, 2001. Accessed at www.fb.org/news/fbn/html/agriculturalterrorism.html.

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

PROTECTING AGAINST ANIMAL DISEASES

STEPS TO PROTECT YOUR FARM FROM TERRORISM[14]

- ✔ **Ask for references.** Make calls to verify that the person requesting any sensitive information is who he or she claims to be, especially if the person claims to be a reporter.
- ✔ **Ensure that access to your facility is controlled.** Establish check-in procedures for visitors. Require visitors to sign in and out upon entering and leaving the facility. Use visitor identification badges. This protects your visitor as well as you and your operation.
- ✔ **Escort visitors at all times while they are on the premises.** Employees should be instructed to report all unescorted visitors to the appropriate management and security personnel immediately.
- ✔ **Maintain basic security by locking office doors and file cabinets.** Have firewalls installed on your computer systems. Maintain separate business and personal computers. Keep all animal health products under lock and key. Use security lighting and alarms. Maintain fencing and gates. Post signs indicating restricted areas and no trespassing.
- ✔ **Thoroughly screen all job applicants.** Take the time to check all references. Double check anyone who shows a university or college identification card. Any hesitation by the prospective employee should exclude him or her from further consideration.
- ✔ **Watch for unusual behavior by new employees.** Pay attention to workers who stay unusually late, arrive unusually early, or access files, information, or other areas of the facility outside their responsibility. Do not allow workers to remove documents from the site. Be suspicious of employees who ask questions on sensitive subjects or bring cameras or video equipment onsite. Watch for workers who are standoffish. Note the mode of dress (e.g., absence of leather or other animal products).
- ✔ **Tell all workers at hiring that unannounced locker checks are part of your routine security maintenance operation** and that your operation will report and file charges against any employee who breaks the law.
- ✔ **Inform employees in vulnerable areas that unauthorized surveillance or infiltration is a possibility**. Any suspicious activity should be reported to supervisors or the appropriate security person immediately.
- ✔ **Watch for warning signs that your operation may be a target.** Such signs can include an increase in requests for animal-specific information or on-farm tours, calls and letters questioning or criticizing your business or particular practices, any harassing calls and letters to you or a nearby operation, increase in media attention to issues relating to the livestock industry, special interest group campaigns locally, and unusual interest in gaining employment.
- ✔ **Develop a company statement concerning care, treatment and nutrition for your animals.** Designate a single spokesperson to handle all calls about animal care, animal rights or any company policy concerning animals.
- ✔ **Conduct routine tests** of your security system and, if necessary, mock drills on your response procedures.
- ✔ **Develop a crisis communication and action plan.** Establish policies and procedures for handling disruptive and illegal situations, as well as for handling adverse publicity that might result. In developing response procedures, remember that steps to protect people should take priority over steps to protect property.

[14] American Farm Bureau. "Steps to Protect Your Farm from Terrorism," *The Voice of Agriculture Newsroom*, October 22, 2001. Accessed at www.fb.org/news/fbn/html/agriculturalterrorism.html.

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

CONTROL, CONTAINMENT, AND ERADICATION MEASURES

When an outbreak is detected, the disease must be controlled, contained, and eradicated. Typical measures include:

- Quarantine of infected animal populations.
- Contact tracing to identify potential exposures.
- Herd depopulation (killing infected and exposed animals).
- Disposal of infected carcasses and products by incineration or burial.
- Decontamination of equipment.
- Movement control (of animals, people, equipment, and products).
- Vaccination of uninfected animal populations.

Vaccination of Livestock and Poultry

Vaccines exist for most of the List A diseases, but they are not generally used except to control an emerging outbreak. (When a disease is eradicated from a country, the procedure of vaccinating animals is discontinued.) Currently the only List A disease for which the USDA has a vaccine available is FAM.

If there were a FAD outbreak, infected and exposed animals would have to be quarantined, and others in surrounding areas would have to be vaccinated immediately to prevent further spread of the disease. A vaccine shortage could allow a small outbreak to become an epidemic.

Vaccine Facts

Vaccines can keep animals from acquiring diseases, but in most cases they do not keep animals from being carriers (e.g., a cow vaccinated against FMD can carry the disease in her throat tissues for more than 2 years after exposure).

A vaccinated animal cannot be distinguished from an infected one because tests are based on presence of antibodies for the disease (which are produced by both vaccines and exposure). If an FAD outbreak occurred, both infected and vaccinated animals would have to be destroyed to eradicate the pathogen completely.

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

PROTECTING AGAINST PLANT DISEASES

Biosecurity measures are unrealistic for crops. It would be virtually impossible to restrict people from getting close enough to crops to release or transmit a pathogen. The primary protections against crop diseases include:

- **Use of disease-resistant strains.** Crops can be made resistant to many diseases through genetic selection and mass production of resistant hybrids. Virus-resistant plant varieties reduce the need for insect control as a means of stopping virus transmission.
- **Herbicides and pesticides.** Herbicides can be used to eliminate weeds, and pesticides can be used to control insect pests that may be vectors for diseases.
- **Crop diversity.** Huge areas planted with a single variety are very vulnerable to a new matching strain of a pathogen or insect pest. Therefore, rotating crops and planting a diverse range of plant varieties can help to counter disease and pest risk. These methods do undermine the economy-of-scale benefits of monoculture; however, the more that farmers themselves do to guard against diseases and pests, the lower the chance of an outbreak—whether natural or deliberate, local or catastrophic.

CONTROL, CONTAINMENT, AND ERADICATION MEASURES

For crops, fungicides and pesticides would be the first line of defense, but eventually resistant strains of the poisoned crop would have to be developed.

USDA DISEASE RESPONSE PROCEDURES

USDA procedures for dealing with disease outbreaks among plants and animals begin at the local level and expand to include national labs and administration if the situation is sufficiently serious.

If the USDA knew that a disease outbreak was not natural but deliberate, emergency response personnel would have to treat the area as a crime scene, working closely with the FBI. (However, it is unlikely the USDA would know this at the time, because the outbreak would only become apparent several days or even weeks after someone released the pathogen.) Even if the USDA knew that an outbreak was deliberate, they would still have to contain it. Thus the USDA's **ability to handle a bioterrorist attack on agriculture hinges on its ability to handle natural outbreaks of disease**.

The USDA's Animal and Plant Health Inspection Service (APHIS) is responsible for handling disease outbreaks among plants or animals—animal disease outbreaks handled by Veterinary Services (VS), and plant disease outbreaks handled by Plant Protection and Quarantine (PPQ). An overview of the emergency procedures for the two types of outbreaks follows.

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

USDA DISEASE RESPONSE PROCEDURES (CONTINUED)

Emergency Procedure for Animal Disease Outbreaks[15]

Within 36 hours of a serious disease outbreak, a national USDA team can be mobilized to handle the situation. The following is a summary of what would happen if an FAD broke out:

1. **Recognition.** A farmer notices a sick animal, or a herd manager of a large production operation notices a higher mortality rate than normal or unique symptoms in a group of animals, and calls the local or corporate veterinarian. This recognition could also begin at a port, sale barn, or other place of animal concentration.
2. **Diagnosis.** The veterinarian either makes a diagnosis of a domestic disease or suspects something abnormal based on clinical signs or epidemiology.
3. **Notification.** If abnormal, the veterinarian will notify a representative of the State veterinarian or APHIS area veterinarian in charge, who will begin the investigation.
4. **Investigation.** Within 24 hours, a foreign animal disease diagnostician (FADD) visits the premises and begins an investigation. The FADD may be a State or Federal veterinary medical officer. The FADD works with the labs to describe the situation and takes the appropriate samples to confirm the disease.
5. **ERT Response.** The Early Response Team (ERT) may be called within 24 hours to characterize an unconfirmed or emerging disease or to describe the pathogenesis and epidemiology of the disease. The ERT makes recommendations that may lead to either a return to routine control and surveillance measures or an escalation of response.
6. 6. **Containment, control, and eradication.** If a disease is confirmed, local and State resources are used to contain, control, and eradicate the disease if possible. If those resources are exceeded or the State requests assistance, the Regional Emergency Animal Disease Eradication Organization (READEO) is activated to integrate with the State's response. The READEO's role is to give additional technical support, coordinate national communication, and manage national consequences and Federal response resources.

[15] Adapted from Kohnen, pp. 31-32.

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

USDA DISEASE RESPONSE PROCEDURES (CONTINUED)

Emergency Procedure for Plant Disease Outbreaks[16]

PPQ's Invasive Species and Plant Management (ISPM) section is responsible for plant disease control and eradication. Plant protection includes guarding against foreign diseases as well as against pests, which can transmit diseases or do direct damage to crops. Although plant diseases do not usually spread as rapidly as animal diseases do, PPQ has procedures in place to control outbreaks very quickly. Below is an outline of the events following a plant disease outbreak.

1. **Recognition.** A grower recognizes a problem with his/her crops and contacts the local plant health expert (often a plant pathologist associated with a university). Under most circumstances, the grower can simply send a sample of the diseased plant into a local agricultural lab and get a diagnosis. PPQ allows 48 hours from initial report of a disease to confirmation by a qualified taxonomist.
2. **Notification.** If the lab recognizes the disease as being particularly serious, it will notify the State plant health authority.
3. **Emergency response.** If the disease is one for which emergency procedures already exist, the plan is put into action by the ISPM personnel, regional Rapid Response Teams (RRTs), regional and State personnel, and industry groups.
4. **Quarantine.** An RRT can be at the infection site within 48 hours; the members of this team are prepared to take emergency quarantine action if necessary.
5. **Assessment.** If the pest is a new one, PPQ calls upon the New Pest Advisory Group to assess the significance of the pest and to determine a response plan. This process takes at most 21 days for pests that are not considered critical, or significantly less for a major pest that is likely to spread quickly and that may have significant economic or other effects.

LOCAL PLANNING FACTORS

Local planning factors include human resources, economic resources, and emergency response.

[16] Adapted from Kohnen, pp. 32-33.

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

Human Resources

APHIS's emergency response capabilities could be overwhelmed by a deliberate disease introduction—especially if an attack occurred in multiple locations and/or with multiple pathogens—and the possibility of insufficient numbers of qualified staff to respond effectively to an outbreak must be considered. Emergency response capabilities need to have some type of "surge" capacity.

Local veterinarians are likely to be the first responders in any FAD outbreak. Almost all practicing veterinarians in the United States have been accredited by the USDA, which requires some (though limited) training in FADs. With some additional FAD training, local accredited vets could become a valuable contingency resource in the event of a major agriterrorism incident.

Economic Resources

If a disease outbreak is so serious that it hinders interstate and foreign trade, the Secretary of Agriculture can declare an "extraordinary emergency." This allows the seizure, quarantine, and disposal of affected or exposed animals as deemed necessary or appropriate.

Owners of the animals are eligible for fair market value compensation of the animals they lost (but not for the revenue losses caused by the quarantine or lost production time). The same is true for farmers whose crops contract serious diseases or pests.

An extraordinary emergency will be declared only if "adequate measures are not being taken by the State or other jurisdiction," so Federal involvement depends upon how much has been done already at the State level. Given that States' abilities to deal with disease outbreaks vary, the need for Federal involvement will differ in each situation.

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

Emergency Response as a Team Effort

When a disease outbreak occurs, a quick, coordinated response is critical in preventing widespread transmission of the disease. This requires a team effort among individual owners, private industry, and personnel in local, State, and Federal agencies.

Depending on the type of outbreak, the following parties may play important roles:

- The owner of the animals or crops (farmer, rancher, feedlot owner, etc.): Recognizing signs of illness or distress in the animals.
- The local veterinarian: Diagnosing the condition, identifying the possibility of an FAD, and notifying authorities.
- State department with jurisdiction over animal health: Notifying State and Federal laboratories and other agencies.
- State and Federal laboratories: Identifying specific pathogens.
- Universities: Providing information, assistance, and guidance.
- Local agencies such as agriculture, regional water quality board, environmental health division, fire department, law enforcement, and public works: Address concerns related to enforcement of movement restrictions, herd depopulation, and carcass disposal, as needed.
- Private industries such as food processing, packing, or rendering: Prevent further spread or impact on public health, as needed.

A checklist of local planning factors is provided on the following pages.

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

Emergency Response as a Team Effort (Continued)

Agriterrorism Planning Checklist

	YES	NO
RISK AND VULNERABILITY ANALYSIS		
1. Has an analysis been conducted to identify local risk factors, including:		
▪ Potential targets (farms, ranches, feedlots, points of animal sale or transportation, feed suppliers, etc.)?	☐	☐
▪ Vulnerability to agriterrorism (e.g., population concentrations, biosecurity issues)?	☐	☐
PREVENTION, SURVEILLANCE, AND DETECTION		
1. Is there an information and education program for veterinarians, producers, affiliated industries, and the public?	☐	☐
2. Have local producers been educated about their role in surveillance and measures for improving biosecurity?	☐	☐
3. Are local veterinarians:		
▪ USDA accredited?	☐	☐
▪ Trained to diagnose foreign animal diseases (e.g., through continuing education)?	☐	☐
▪ Informed of reporting procedures?	☐	☐
RESPONSE		
1. Has a coordinated response plan been developed with input from all stakeholders, including the following?	☐	☐
▪ Federal agencies:		
• USDA	☐	☐
• FEMA	☐	☐
• FBI	☐	☐
▪ Producers and associated industries	☐	☐
▪ Veterinarians (local, State, and Federal)	☐	☐
▪ State and Federal laboratories	☐	☐

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

Emergency Response as a Team Effort (Continued)

Agriterrorism Planning Checklist

	YES	NO
RESPONSE (CONTINUED)		
▪ State and county departments:		
• Office of the Governor	☐	☐
• Emergency Management	☐	☐
• Agriculture/Animal Health/Land Stewardship	☐	☐
• Public Health/Public Safety	☐	☐
• Natural Resources	☐	☐
• County Engineer/Public Works (for burial)	☐	☐
• Food Safety	☐	☐
• Transportation	☐	☐
• National Guard	☐	☐
▪ Universities (veterinary programs, extension programs)	☐	☐
▪ Local agencies:		
• Local agriculture commissioner	☐	☐
• Regional water quality board	☐	☐
• Environmental health division	☐	☐
• Air pollution control district	☐	☐
• Local fire department (carcass incineration)	☐	☐
• Law enforcement (enforcement of movement restrictions)	☐	☐
▪ Related businesses (e.g., packing plants, feed suppliers, rendering plants, animal transport companies, processing companies, etc.)	☐	☐
▪ American Red Cross (family support)	☐	☐
2. Has a communication system and protocol been established to link all stakeholders during an event?	☐	☐

RESPONSE TO THE THREAT OF AGRITERRORISM (CONTINUED)

Emergency Response as a Team Effort (Continued)

Agriterrorism Planning Checklist

	YES	NO
RESPONSE (CONTINUED)		
3. Does the response plan specify responsibilities and procedures for the following?		
▪ Coordinated surveillance	☐	☐
▪ Reporting of non-endemic diseases to animal health authorities	☐	☐
▪ Provision of field investigations by trained FAD diagnosticians	☐	☐
▪ Diagnosis and detection	☐	☐
▪ Investigation (contact tracing)	☐	☐
▪ Rapid notification	☐	☐
▪ Coordination with USDA, FEMA, FBI	☐	☐
▪ Activation of the FRP, if appropriate	☐	☐
▪ Reporting suspected terrorism to the FBI	☐	☐
▪ Containment and control measures (e.g., quarantine, movement restrictions)	☐	☐
▪ Enforcement of movement restrictions	☐	☐
▪ Vaccination programs to protect unexposed herds	☐	☐
▪ Eradication (e.g., her depopulation, decontamination)	☐	☐
▪ Disposal of contaminated carcasses and products	☐	☐
▪ Public information and education	☐	☐
▪ Wildlife measures (e.g., disease monitoring, depopulation, vector spraying) if appropriate	☐	☐
▪ Recordkeeping	☐	☐
▪ Recovery	☐	☐
4. Has the plan been tested, including field exercises, simulations, and drills?	☐	☐